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3 flat heat pipe adjacent to said first end, and said fan housing is thermally coupled
4 to said flat heat pipe adjacent said second end.

1 29. (New) The apparatus of claim 25 wherein said flat heat pipe defines an
2 open area sized to accommodate a component of said portable computer.

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30. (New) The apparatus of claim 25 wherein said flat heat pipe includes two
2 metal plates having respective first surfaces joined together and having
3 respective second surfaces, at least one of said metal plates being formed such
4 that a channel is formed between said first surfaces of said metal plates and a
5 protrusion is formed on said second surface of said formed metal plate, said
6 protrusion corresponding to said channel.

REMARKS

Applicant respectfully requests reconsideration of this application as amended.

The specification has been amended to correct typographical errors in a previously submitted amendment. Claims 23 and 24 are cancelled without prejudice. Claims 12-22 and 25-30 remain pending in this application. Claims 12-22 have been amended to clarify the present invention. New claims 25-30 were added. No new matter has been added.

Claims 12, 14, 15 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Penniman et al. in view of Ohashi et al.

Claim 13 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Penniman et al. in view of Ohashi et al. as applied to claim 12 above, and further in view of Carlsten et al.

Claims 16-19 and 21-22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Penniman et al. as applied to claims 12, 14, 15 and 20 above, in view of Ohashi et al., and in further view of Dinh et al.

Claims 23 and 24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Penniman et al. in view of Ohashi et al., and in further view of Dinh et al.

Applicant claims an apparatus comprising (among other limitations) a keyboard having a thermally conductive support plate, a flat heat pipe attached to the bottom surface of the keyboard support plate, a heat generating device thermally coupled to the heat pipe, and air moving means (in claim 12) or a fan (in claims 20 and 25) for producing an air flow through a housing.

The Office Action rejects claims 12-24 as being unpatentable over Penniman et al. ("Penniman") in view of Ohashi et al. ("Ohashi") (and in further view of other references for certain claims). The Office Action states that "it would have been obvious to one of ordinary skill in the art at the time the invention was made to integrate the fan structure of Ohashi with the teachings of Penniman to increase air flow in the portable computer." Also, in response to previous arguments, the Office Action states that "one of ordinary skill in the art would in fact add a fan to any computer system having heat generating components to aid in the removal of heat therein . . ."

Applicant respectfully submits, however, that even if Ohashi were combined with Penniman, such a combination would lack the features of each of Applicant's independent claims 12, 20, and 25. Neither Penniman nor Ohashi, alone or in combination, teaches a housing or a fin that is thermally coupled to a heat pipe through which a fan could produce an air flow. Penniman does not teach air flow at all and, in

fact, teaches away from providing a fan. Ohashi teaches a fan for moving air between or through the spaces between a keyboard and a circuit board or between circuit boards of the portable computer. Applicant does not merely claim the existence or presence of a fan. Applicant claims specific structural limitations such as the use of a housing or fin that is thermally coupled to a heat pipe. Since the prior art does not teach or suggest this limitation, Applicant respectfully submits that the combination is not obvious.

Applicant also respectfully submits that one of ordinary skill in the art at the time the invention was made would not include air moving means (as in claim 12) or a fan (as in claims 20 and 25) together with a heat pipe as set forth in independent claims 12, 20, and 25. The Office Action's assertion that the teaching, suggestion, or motivation to do so can be found in the knowledge generally available to one of ordinary skill in the art is respectfully traversed. On the contrary, the physical and electrical considerations of portable computers discourage multiple heat removal systems in portable computers such as adding a fan to a portable computer that also has a heat pipe. Applicant submits that it would not be obvious to integrate a fan (or air moving means) together with a heat pipe as is required by Applicant's claims.

Since neither Penniman nor Ohashi teach, suggest, or provide motivation to integrate the fan structure of Ohashi with the teaching of Penniman to arrive at all the limitations of Applicant's claims, it would be impermissible hindsight based on Applicant's own disclosure to combine Penniman with Ohashi.

Moreover, both Penniman and Ohashi, considered either alone or in combination, teach away from providing all the limitations of any of Applicant's independent claims. For example, the references teach that because portable computers have only a limited supply of both power and space, a commercial advantage is achieved by manufacturing portable computers that are both small and lightweight. (See Penniman, col. 2, lines 1-24. Also see Ohashi, col. 1, lines 30-41, and lines 60-63.) Size, weight, and power consumption are important considerations in the

manufacturing of portable computers. Also, fans can create noise when used in portable computers. Thus, Penniman and Ohashi teach away from providing a fan together with a heat pipe.

Dependent claims 13-19, 21, and 22 were also rejected as being unpatentable over Penniman in view of Ohashi, and further in view of other references for certain claims. Applicant respectfully submits that for at least the reasons set forth above with respect to Applicant's independent claims, the dependent claims are not rendered obvious by any of the references cited because they include all the limitations of their respective independent claims as well as additional limitations.

In view of the foregoing amendments and remarks, Applicant respectfully submits that all pending claims are in condition for allowance. Such allowance is respectfully requested.

If the Examiner finds any remaining impediment to the prompt allowance of these claims that could be clarified with a telephone conference, the Examiner is respectfully requested to contact Joseph A. Twarowski at (408) 720-8300.


Deposit Account Authorization

A check in the amount of \$760 for the CPA fee is submitted herewith. Authorization is hereby given to charge our Deposit Account No. 02-2666 for any charges that may be due or credit our account for any overpayment. A Petition and check for a two month extension of time are also submitted with this Preliminary Amendment.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Dated: September 23, 1999



Joseph A. Twarowski
Reg. No. 42,191

"Express Mail" mailing label number: EL236238115US
Date of Deposit: 9/23/99
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